

Claims:

What is claimed is:

1. A device for balancing the flow of fluids in a blood treatment system, comprising:

a balancing mechanism that receives a first flow of fluid that includes renal waste and controls a second flow of fluid including fluid to be infused into a patient to maintain a correct fluid balance of the patient;

the balancing mechanism employing a volumetric system that is subject to variation in relative flow volume rates due to variations in differences between respective inlet and outlet pressures of said first and second flows;

said balancing mechanism receiving a compensation signal and adjusting a balance between a ratio of said first flow to said second responsively to said compensation signal;

a controller configured to generate said compensation signal responsively to at least one pressure measurement, said at least one pressure measurement including at least one of said differences between respective inlet and outlet pressures of said first and second flows.

2. A device as in claim 1, wherein said controller stores a continuous control curve indicating a correspondence between experimentally determined error versus pressure.

3. A device for balancing the flow of fluids in a blood treatment system, comprising:

a volumetric balancing mechanism having inputs and outputs for respective first and second fluid flows, at least one of said outputs being connected to a venous line of a blood circuit that returns blood to a patient;

at least one pressure sensor in at least one of said venous line and said at least one of said outputs;

a controller configured to calculate an error rate in a net fluid transfer rate as a function of a signal from said pressure sensor;

the controller being further configured to calculate a fluid compensation signal that is proportional to the measured venous pressure at at least some portion of its operating range;

wherein said volumetric balancing mechanism is configured to receive said fluid compensation signal and adjust a relative rate of said first and second fluid flows responsively thereto.

4. A device as in claim 3, wherein said first flow is a waste flow from a blood filtering device.

5. A device as in claim 4, wherein said second flow is a replacement fluid flow.

6. A device as in claim 1, wherein said second flow is a replacement fluid flow.